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EXAMINER	
LAROSE, COLIN M	
ART UNIT	**PAPER NUMBER**
2627	

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/617,828	NAGASAKA ET AL.	
	Examiner	Art Unit	
	Colin M. LaRose	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *20-26 and 28-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *20-26 and 28-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Arguments and Amendments

1. Applicant's amendments and arguments filed 14 February 2006, have been entered and made of record.

Drawings

2. The replacement drawings for figures 9-11 have been received and placed in the file. In view of Applicant's remarks, the requirement for the "Prior Art" label for figures 12 and 13 has been withdrawn.

Response to Amendments and Arguments

3. Applicant has amended claims 20 and 37 and added new claims 45 and 47 to denote that a single image capture unit is utilized. This change is insufficient to overcome the previous rejections under § 102(b) in view of Miura insofar as the claims do not preclude multiple image capture units. The amended claims merely recite that a "single" image capture unit is utilized and place no restrictions on there being other image capture units such as if the claim read, "only one image capture unit" or "only a single image capture unit."

In figure 5, Miura discloses using a single image capture unit – i.e. any of the four cameras. Miura also uses three other cameras, any of which also correspond to a "single" image capture unit.

4. Applicant has amended claims 25 and 32 and added new claim 44 to denote that "the image capture unit and the light source part are not opposite each other in a coaxial form." This change is insufficient to overcome the previous rejections under § 102(b) in view of Miura.

Miura's "light source" corresponds to any two of the four light bulbs shown in figure 5 that are operative to "irradiate a finger with light from first and second sides of the finger."

Miura's image capture unit corresponds to any of the four cameras, all of which "capture images by the light transmitted through the finger."

While each of Miura's cameras are "coaxially" aligned with corresponding light sources, it cannot be said that Miura "image capture unit" is coaxially aligned with two different light bulbs. In other words, none of Miura's cameras are opposite two of the four light bulbs in a coaxially form. Rather, each of the cameras is coaxially opposite exactly one of the light bulbs.

Therefore, Miura's image capture unit (i.e. one of the cameras) is not opposite the light source (i.e. at least two of the four light bulbs) in a coaxial form.

5. Regarding claims 22, 28, 36, and 42, Applicant argues that Nakayama does not show "the guide part for receiving the finger for causing the finger to arc along the length thereof" (p.11 of Remarks). However, Examiner considers figure 2 of Nakayama to clearly show a finger being placed on a guide part that causes the finger to arc. That is, the angled guide part causes the finger to arc.

Claim Objections

6. Claims 25 objected to because of the following informalities:

Regarding claim 25, "the first side and the second sides" should be rewritten as -- the first side and the second side --, or -- the first and second sides --.

Regarding claim 26, "the images captured has" should be -- the captured images have --.

Regarding claim 46, "unite" should be -- unit --.

Regarding claims 45 and 47, the phrase, "wherein the image capture unit is single," exhibits improper syntax (unless it is intended that the image capture unit is "available," so to speak).

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 20, 25, 31, 32, 37, 39, 43-45, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication 2002/0028004 by Miura et al. ("Miura").

Regarding claims 20, 31, 37, 39, and 43, Miura discloses a personal identification apparatus (figure 1) comprising:

two light sources (2) to irradiate light to a finger from two sides of the finger (see figure 5: at least two light sources 2 are disposed around the finger to illuminate at least the left and right sides of the finger);

a single image capture unit (4) to capture the light from the light sources transmitted through the finger (see also figure 5, where any one of the plurality of cameras is utilized as a single image capture unit); and

a processing unit (1, coupled with CPU 9) to cause the two light sources to irradiate the light alternately, and cause the image capture unit to capture a plurality of images at a timing of the irradiation of the light sources (see paragraph [0033]: "if interference among the light sources disturbs the received images, the light sources may be operated with time lags for consecutive imaging" – in other words, the light are alternately irradiated and the plurality of images are captured during the irradiation of the alternating light sources in order to eliminate interference among the images),

wherein the processing unit extracts a feature of a vein pattern of the finger from the plurality of images captured by the image capture unit and executes personal identification using the extracted feature (i.e. the CPU 9 processes the captured images to extract the vein patterns and identify an individual therefor – see figure 9).

Regarding claims 25 and 32 Miura discloses a personal identification apparatus (figure 1) comprising:

a light source part composed of two light sources (2) to irradiate light to a finger from two sides of the finger (see figure 5: at least two light sources 2 are disposed around the finger to illuminate at least the left and right sides of the finger);

an image capture unit (4) to capture the light from the light sources transmitted through the finger (see also figure 5, wherein any one of the plurality of cameras is utilized as an image capture unit); and

a processing unit (1, coupled with CPU 9) to cause the two light sources to irradiate the light alternately, and cause the image capture unit to capture a plurality of images at a timing of the irradiation of the light sources (see paragraph [0033]: "if interference among the light sources disturbs the received images, the light sources may be operated with time lags for consecutive imaging" – in other words, the light are alternately irradiated and the plurality of images are captured during the irradiation of the alternating light sources in order to eliminate interference among the images),

wherein the image capture unit and the light source part are not opposite each other in a coaxial form (i.e. a single camera 4 and two non-corresponding light sources 2 are not opposite each other in coaxial form), and

the processing unit extracts a feature of a vein pattern of the finger from the plurality of images captured by the image capture unit and executes personal identification using the extracted feature (i.e. the CPU 9 processes the captured images to extract the vein patterns and identify an individual therefor – see figure 9).

Regarding claim 44, Miura discloses that the image capture unit and the light source part are not opposite each other in a coaxial form (i.e. a single camera 4 and two non-corresponding light sources 2 are not opposite each other in coaxial form).

Regarding claims 45 and 47, Miura discloses that the image capture unit is single [sic] (i.e. any one of the plurality of cameras in figure 5 is utilized as an image capture unit).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 21, 26, 33, 38, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0028004 by Miura et al. ("Miura").

Regarding claims 21, 26, 33, and 38, Miura is unconcerned with whether a given region in any of the images is saturated or unsaturated. Therefore, Miura does not expressly teach that (1) the images have saturated regions, or (2) the feature of the vein pattern is extracted from unsaturated regions. Miura extracts the feature of the vein pattern by determining initial tracking points and then executing a tracking process on the basis of the initial points (see figure 13).

Regions that are saturated contain no identifiable information therein – i.e. the region is either maximally light or maximally dark and there are no midtones, contrasting lines, or edges from which to extract object information (i.e. features of a vein).

To the extent that saturated regions prevent the extraction of salient object information therefrom, Miura's extraction method attempts to extract a vein feature regardless of whether the feature lies in a saturated or unsaturated region. Miura extracts a feature from an unsaturated region on the basis of the feature being present therein, and not on the basis of the region happening to be unsaturated. Thus, the location of Miura's vein feature, and not the lightness characteristics of the region (saturated or unsaturated), determines which regions from which the feature will be extracted.

While there is no mention of Miura's extraction process being performed on "unsaturated" regions, those skilled in the art at the time of the invention would have known that Miura's extraction process extracts the feature from at least some regions that are unsaturated since saturated regions, per se, exhibit either maximal lightness or maximal darkness and contain no salient object information therein which can be extracted. In addition, the presence or absence of saturated regions among the plurality of images is dependent upon the specific implementation of the imaging and illumination apparatus, and the presence of saturated regions in the images has no bearing on the extraction process other than to hinder it. Therefore, the present amendment, which specifies that saturated regions are present in the images, is not considered to be a patentable distinction from Miura.

Regarding claim 46, Miura's light sources irradiate the light so as to cause saturated regions in the images, if any. Again, the presence of saturated regions is considered nothing more than a hindrance on the extraction process and depends upon the specific implementation of Miura and the environment in which the processes of illuminating and imaging a finger are carried out. The requirement that the light sources cause saturated regions in the images is not considered to render the claimed invention patentably distinct from Miura.

11. Claims 23, 29, 34, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0028004 by Miura et al. ("Miura") in view of U.S. Patent Application Publication 2002/0048014 by Kono et al. ("Kono").

Regarding claims 23, 29, 34, and 40, Miura does not disclose measuring finger thickness and controlling the amount of light based on the finger thickness, as claimed.

Kono discloses a system for identifying an individual on the basis of vein patterns that is very similar to that of Miura. In particular, Kono teaches that when irradiating and imaging vein patterns of a finger, it is advantageous to control the amount of light impinging the finger so as to optimize the light intensity. Kono teaches that the light is advantageously varied according to the thickness of the finger. A plurality of LEDs are employed to detect the thickness of the finger and thereby select which light elements are to be turned on for illuminating the finger. See paragraph [0029].

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Miura by Kono to measure the thickness of the finger and control the amount of light based on the thickness, since Kono teaches that such a technique of varying the amount of light based on the size of the finger is conventionally employed for the purposes of optimally imaging a finger in order to detect vein patterns therein. See paragraph [0029].

12. Claims 22, 28, 36, and 42, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0028004 by Miura et al. ("Miura") in view of U.S. Design Patent 382,862 by Nakayama et al. ("Nakayama").

Regarding claims 22, 28, 36, and 42, Miura does not expressly disclose a guide part for receiving the finger and causing it to arc, as claimed.

Nakayama discloses a conventional design for a finger-imaging apparatus. The apparatus includes a guide part that receives a finger to be imaged and causes the finger to arc, as shown in figure 2. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Miura by Nakayama to incorporate Nakayama's guide part since Nakayama teaches

that a guide part for receiving a finger to be imaged that causes the finger to arc is a conventional design for a finger imaging apparatus.

13. Claims 24, 30, 35, and 41, are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication 2002/0028004 by Miura et al. ("Miura") in view of U.S. Patent 5,177,802 by Fujimoto et al. ("Fujimoto").

Regarding claims 24, 30, 35, and 41, Miura does not disclose a switch that activates the processing unit, as claimed.

Fujimoto discloses a finger imaging system that captures images of a finger in order to identify an individual, similar to the system of Miura. In particular, Fujimoto discloses an embodiment wherein a switch is depressed in order to activate personal identification (see figure 18). As shown in figure 18, when the fingertip depresses the switch 1003, the finger is in a position conducive to imaging the salient portions thereof.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Miura by Fujimoto to include a fingertip-activated switch that initiates personal identification when depressed since Fujimoto teaches that providing a switch for activation as claimed was a conventional technique utilized for the purposes of imaging a finger in a desirable orientation with "little positional slippage" (see column 17, lines 35-41).

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu, can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CML
Group Art Unit 2627
2 March 2006

VIKKRAM BALI
PRIMARY EXAMINER